

Amendments to the Claims

Please amend Claims 1-10 to read as follows.

1. (Currently amended) An ~~exposure~~ apparatus comprising:
a projection optical ~~system having a predetermined image forming~~
~~characteristic system;~~
a mask stage, arranged on one side of said projection optical system, ~~for~~
~~holding to hold~~ a mask substrate, said mask stage and having a reference plate;
a wafer stage, arranged on the other side of said projection optical system,
~~for holding to hold~~ a wafer, said wafer stage and having a reference mark; and
~~an optical modulation member for influencing an image forming relation~~
~~between the mask substrate and the wafer, when the pattern on the mask substrate is~~
~~transferred to the wafer through said projection optical system; and~~
an adjusting unit ~~for substantially matching to match~~ an image forming
relation between the said reference plate and the said reference mark through said
projection optical system to the an image forming relation between the mask substrate and
the wafer, ~~which has been influenced by said~~ wafer through said projection optical system
and an optical modulation member, ~~when positions of the reference plate and the reference~~
~~mark are detected through an optical path of said projection optical system for positioning~~
~~the mask substrate and the wafer~~ member to influence an image forming relation between
the mask substrate and the wafer through said projection optical system.

2. (Currently amended) ~~The exposure~~ An apparatus according to claim 1, wherein ~~said~~ the optical modulation member is configured with at least one of a first optical element, comprised in said apparatus, for correcting an aberration of said projection optical system, and a pellicle for protecting the mask substrate, and an optical device for correcting an aberration of said projection optical system, and

wherein said adjusting unit is a ~~correction~~ second optical device element arranged between ~~the~~ said reference plate and said projection optical ~~system for apparatus calibration or wafer positioning system, and~~

wherein said ~~correction~~ second optical device element has an equal thickness optical path length equal to a total ~~thickness~~ optical path length of the at least one of said first optical element and the pellicle and the optical device which constitute said optical modulation member pellicle.

3. (Currently amended) ~~The exposure~~ An apparatus according to claim 2, wherein in ~~said~~ the optical modulation member, a combination of the pellicle and ~~the optical device~~ said first optical element is determined so that the total ~~thickness~~ optical path length of the pellicle and ~~the optical device~~ said first optical element is constant.

4. (Currently amended) ~~The exposure~~ An apparatus according to claim 2, wherein said ~~correction optical device~~ second optical element is formed into a partially processed shape or an aspherical shape so as to correct ~~the~~ an aberration at ~~the~~ a pupil position of said projection optical system.

5. (Currently amended) ~~The exposure~~ An apparatus according to claim 1, wherein said adjusting unit ~~is realized by providing~~ has a structure that provides a predetermined difference between a pattern surface position of the mask substrate that faces said projection optical system and a surface position of ~~the~~ said reference plate that faces said projection optical system, in an optical axis direction of said projection optical system.

6. (Currently amended) ~~The exposure~~ An apparatus according to claim 5, wherein ~~said the~~ optical modulation member is configured with at least one of ~~a pellicle for protecting the mask substrate, and an optical device for correcting an aberration of said projection optical system~~ a first optical element, in said apparatus, for correcting an aberration of said projection optical system, and a pellicle for protecting the mask substrate,

wherein the predetermined difference Tsp is expressed by

$$T_{sp} = T_p \times (1 - 1/N_p) + T_g \times (1 - 1/N_g)$$

where Tp represents a thickness of the pellicle, Np represents a refractive index of the pellicle, Tg represents a thickness of ~~the optical device~~ said first optical element, and Ng represents a refractive index of said first optical element.

7. (Currently amended) ~~The exposure~~ An apparatus according to claim 1, wherein said adjusting unit ~~is realized by providing~~ has a structure that provides a predetermined difference between a wafer surface position that faces said projection optical

system and a surface position of ~~the~~ said reference mark that faces said projection optical system, in an optical axis direction of said projection optical system.

8. (Currently amended) ~~The exposure~~ An apparatus according to claim 7, wherein the predetermined difference is provided by driving ~~the~~ said wafer stage in the optical axis ~~direction when apparatus calibration is performed~~ direction.

9. (Currently amended) ~~The exposure~~ An apparatus according to claim 8, wherein ~~said the~~ optical modulation member is configured with at least one of ~~a pellicle for protecting the mask substrate, and an optical device for correcting an aberration of said projection optical system~~ a first optical element, in said apparatus, for correcting an aberration of said projection optical system, and a pellicle for protecting the mask substrate,

wherein the predetermined difference T_{wp} is expressed by

$$T_{wp} = T_p \times (1 - 1/N_p) / \beta^2 + T_g \times (1 - 1/N_g) / \beta^2$$

where T_p represents a thickness of the pellicle, N_p represents a refractive index of the pellicle, T_g represents a thickness of ~~the optical device~~ said first optical element, N_g represents a refractive index of said first optical element, and β represents an image forming magnification of said projection optical system.

10. (Currently amended) ~~The exposure~~ An apparatus according to claim 1, wherein said ~~exposure~~ apparatus is a scanning projection exposure apparatus.